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SPATIAL DISTRIBUTION OF RUPTURED CULPRIT PLAQUES IN ACUTE CORONARY SYNDROMES. AN OPTICAL COHERENCE TOMOGRAPHY STUDY

i2 Poster Contributions
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Background: Recent studies have shown that the majority of culprit lesions (CLs) in acute coronary syndromes (ACS) are located in proximal segments of coronary arteries. It has been suggested that this discrepancy is due to morphological differences. We investigated in patients with ACS , whether culprit plaque rupture by optical coherence tomography is associated with the location of the CL.

Methods: We included 74 consecutive patients with ACS that underwent cardiac catheterization within 24 hours from symptom onset. Distance of the CL from the coronary ostium was measured with quantitative coronary angiography. Culprit lesions were classified as proximal or distal based on the distance from the coronary ostium (proximal ≤30mm; distal>30mm). Optical coherence tomography examination was then performed in all culprit lesions and presence of plaque rupture was recorded.

Results: Thirty three culprit lesions were located in the distal part of coronary arteries and 41 in the proximal. A rupture was found in 75.6% of the proximal lesions (n=31) and in 45.4% (n=15) of the distal lesions (p=0.01). In the LAD 12 out of 17 ruptured plaques were located in the proximal 30 mm (70.6%), versus 83.3% (5 out of 6) for the LCx and 60.9% (14 out of 23) for the RCA (p=NS). Ruptured plaques were located more proximally than non-ruptured plaques (distance from ostium: 27.1±19.1mm vs. 39.5±19.4, p<0.01). Vessel sub-analysis revealed that this difference reached statistical significance for the LAD (22.2±11.5mm vs. 32.7±14.2, p<0.05) and the LCx (16.8±15.7mm vs. 60.3±16.2, p<0.05), but not for the RCA (33.5±22.5mm vs. 40.7±22.1, p=0.39).

Conclusions: Culprit lesions in proximal segments of coronary arteries are more often associated with plaque rupture than plaques located in the distal part of coronary arteries. This study suggests that morphological discrepancies may account for the higher incidence of ACS in proximal lesions.